PATENT
2565-0136P

#33/Brief
K. Dunn
3.7.03

IN THE U.S. PATENT AND TRADEMARK OFFICE

In re application of		Before the Board of Appeals	
Shusou WADAKA, et al.		Appeal No.:	
Appl. No.:	09/202,070	Group:	2834
Filed:	December 8, 1998	Examiner:	M. BUDD
Conf.:	2419		
For:	FILM ACOUSTIC WAVE DEVICE AND ITS MANUFACTURING METHOD AND CIRCUIT DEVICE		

REPLY BRIEF

Assistant Commissioner for Patents
Washington, DC 20231

February 27, 2003

Sir:

In response to the Examiner's Answer to the Appeal Brief filed on October 17, 2002, Applicants provide the following comments.

Statement of Related Application

It should be noted that application no. 09/778,872 (Atty. Doc. No. 2565-0225P)[1] concerns related subject matter to the above-identified application and an Appeal Brief has been filed in the United States Patent and Trademark Office. Therefore, multiple applications concerning related material are concurrently at the Board of Patent Appeals and Interferences.

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[1] This application claims priority of the present application under 35 U.S.C. §120.

Argument

The Examiner alleges, in his Answer to the Appeal Brief, that the recitations of "wherein"[2] in the claims "is merely a statement of desired function adding no structure to the device claimed." The Examiner further states that the "wherein" recitations "have not been given patentable weight." Applicants contend that the Examiner is wrong on his position and patentable weight should be given to each of the features, including the "wherein" clauses, recited in the independent claims.

It is apparent from the Examiners comments that he is basing his rejection of the claims on the individual acoustic wave device and not what the independent claims recite which are "a wafer" and "a plurality of acoustical wave device chips formed from a common wafer". For example, the Examiner states "each reference obviously designs the resonator chips with a final frequency in mind and then fine tunes the device to compensate for the deviations in manufacture" (emphasis added). The Examiner is stating exactly what the present invention was designed to overcome. In the manufacturing process, relative location of the acoustical wave device on the wafer will

[2] "wherein at least one component in some of the plurality of acoustical wave devices is modified in its operational characteristic to compensate for the variation in the at least one characteristic of the piezoelectric thin film and is based on the location of the at least one acoustical wave devices on the wafer"

determine a physical parameter of the device, for example, the thickness of a metal layer. Thus, because of this variation across the wafer corrections need to be made to a characteristic feature of the acoustical wave device in order to compensate for this variation. By doing this, the correct frequency of all the acoustical wave devices on the wafer is obtained.

In the prior art corrections to the acoustical wave devices have been accomplished by modifying individually each acoustic wave device once they have been manufactured. This is time consuming and very costly. Applicants, however, determine what areas of the wafer receive more or less material, for example of a metal deposited layer, and modify a characteristic of the acoustical wave device at that location to compensate for the variation in characteristic such as the thickness. By doing this, Applicants' invention limits the necessity to individually modify an acoustical wave device once it has been manufactured, by changing a characteristic of the acoustical wave device based on its location on the wafer. Thus, for example, when a wafer goes through the manufacturing process, the acoustical wave devices on the edge of the wafer have certain pattern shaped features which allow the devices to achieve a desired operational characteristic, while acoustical wave device in the middle of the wafer have different pattern shaped features which enable them to achieve the same desired operational characteristic as the acoustical wave devices on the edges of the wafer. Therefore, a greater percentage of acoustical

wave devices are manufactured with the appropriate frequency a design variation incorporated within the wafer not by individual modification after manufacturing.

The Examiner relies upon *In re Mason*[3] to assert that "the functional 'whereby' statement does not define any structure and accordingly can not serve to distinguish" and by this appears to assert that the recitation of "wherein" amounts to the recitation of "whereby". Assuming that the Examiner asserts that "whereby" and "wherein" mean the same, he asserts that "wherein" clauses should not be given consideration in determining patentability. Applicants contend that a determination of functional versus structural element within claim language is purely based on the facts of the case on not a blanket rule. The facts of *In re Mason* state that the "whereby" clause of the decision "includes a functional statement as to what happens" (emphasis added) and therefore does not provide structure. In Applicants' invention the "wherein" clause does not dictate what happens, but recites a clear structural relationship between the wafer and the components located the wafer.

In relation to the recitation of "a wafer" and a "plurality of acoustical wave device chips formed from a common wafer", the "wherein" clauses of Applicants' independent claims provide a structural element which defines a

[3] *In re Mason*, 114 USPQ 127, 44 CCPA 937 (1957)

characteristic of the acoustical wave devices on the wafer at a particular determined location on the wafer. The "wherein" clause is not related to an individual acoustical wave device nor is it a functional statement. In disregarding the "wherein" clauses, the Examiner is essentially alleging that the location and shape of pattern of the acoustical wave devices are not structurally applicable and thus not patentable. Applicants respectfully submit that "language identifying the physical location suggests a structural element." *Cole v. Kimberly-Clark Corp, 41 U.S.P.Q. 101 (Fed. Cir. 1996).* Accordingly, the dependency of the shape of the characteristics of the acoustic wave devices on the location at which the acoustic wave devices are mounted on the wafer is structurally applicable and should be given patentable weight.

Furthermore, the Examiner "must consider all claim limitations when determining patentability of an invention over the prior art." *In re Lowry, 32 USPQ2d 1031 (Fed. Cir. 1994).* In his determination of patentability over the cited art, the Examiner is not considering the "wherein" clauses, as he has stated, and thus limitations of the claimed invention are not being considered as required. The Examiner cannot reject the claims under 35 U.S.C 102, without the reference teaching each and every aspect of the claimed features, *MPEP 2131.* The Examiner has simply failed to establish a prima facie case.

Finally, the Examiner states regardless of the discussion above, Japan (804) provides resonators 5 and 5' which have different shapes at different

substrate locations and Curran provides resonators A, B and C have a different frequency and therefore must be structurally different at different locations. The Examiner also notes that the resonators of Curran are located a distance from each other to avoid interference and thus is position determined.

Here again the Examiner is disregarding elements of the claimed features. The Examiner is ignoring the wafer as having various acoustical wave devices of different characteristics based on location to achieve a same operational characteristic. Applicants' invention increases the ability for a plurality of acoustical wave devices having the same operational characteristic (i.e., frequency), as recited in the claims, to be manufactured on single wafer. The invention does not relate to an individual acoustical wave device or devices of various frequencies on a single wafer.

In contrast, Curran provides three separate frequency resonators which are formed on the same substrate but each has a driving element of a different thickness in order to achieve a different frequency for the resonator. Thus, the resonators are not designed to achieve the same operational characteristic as claimed by Applicants.

Also, Japan (804) (Reference JP 5-259804) pertains to an ultra thin plate multi-stage cascade connection of multiplex mode filters. The references 5 and 5' refer to divided electrodes. These electrodes are part of an individual mode filter and are designed to be connected with each other in cascade, as illustrated in

Figs. 3 and 4. These mode filters are not formed from a common wafer and do not exhibit the same operational characteristic and in fact are designed specifically to operate differently so as to combat interferences associated with the operation of the device.

For similar reasons, which is detailed in the Appeal Brief, the other relied upon references, Krishnasawamy and Vale also do not teach or suggest the features recited in Applicants' claims.

Conclusion

Applicants respectfully submit that the "wherein" clauses of the claims do define structure and should be given patentable weight. Further, the combination of features in Applicants' claims are not taught or suggested by the references or the combination thereof. Accordingly, reversal of the rejection based on the above arguments and those provided in the Appeal Brief is respectfully requested.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No.

02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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REPLY BRIEF TRANSMITTAL FORM

Assistant Commissioner for Patents
Washington, DC 20231

February 27, 2003

Sir:

Transmitted herewith is a Reply Brief (in triplicate) on behalf of the appellants in connection with the above-identified application.

☐ The enclosed document is being transmitted via the Certificate of Mailing provisions of 37 C.F.R. § 1.8.

The Examiner's Answer was mailed on December 31, 2002.

☐ An extension of time under 37 C.F.R. § 1.136(b) to was requested on and was approved on .

☐ Please charge Deposit Account No. 02-2448 in the amount of $0.00. A triplicate copy of this sheet is attached.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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Attachments